

SLLIMM™ -nano 2nd series

Intelligent Power Modules



Boost the power capability and save space in Home Appliance applications

The new SLLIMM™- nano 2nd series of IGBT- and SJ MOSFET-based intelligent power modules fully satisfies space saving needs and features required in power applications working at up to 500 W.

The SJ MOSFET-based products, with a $R_{DS(on)}$ up to 1 Ω , are the ideal for fridge compressors and all applications working at low load. The IGBT-based products, are ideal for full load applications, addressing also low-power washing machines.

KEY FEATURES

- 600 V SJ-MOSFET and IGBT (planar and TFS) based IPMs
- Current capability from 1 up to 8 A at 25°C
- Optimized voltage drop in conduction
- On-board NTC thermistor
- Slots for heatsink screws
- Dual-inline or zig-zag leads
- With and without stand off
- UL recognized 1.5 kVrms: UL 1557, file E81734

KEY BENEFITS

- Higher robustness and reliability
- Package compactness and thermal performance
- Embedded protection inside the module
- Plug'n Play solution
- Easily driven by microcontroller

MAIN APPLICATIONS

- Fans
- Dishwashers
- Compressors
- Pumps
- Refrigerators
- Washing machine

To highlight the advantages of our IPMs, we compared their performance under two different conditions corresponding to a fridge compressor and washing machine.

Figure 1 shows that our SJ-MOSFET IPM works better than IGBT IPM up to 100 W, having a lower delta temperature ($T_{case} - T_{amb}$), thus maximizing efficiency at low loads.

Figure 2 shows a benchmark with our IGBT-based IPM vs the main competitor, revealing a better performance across the entire frequency range typical of washing machine conditions.

Fig1: IGBT vs SJ-MOSFET IPMs, low load delta temperature vs input power

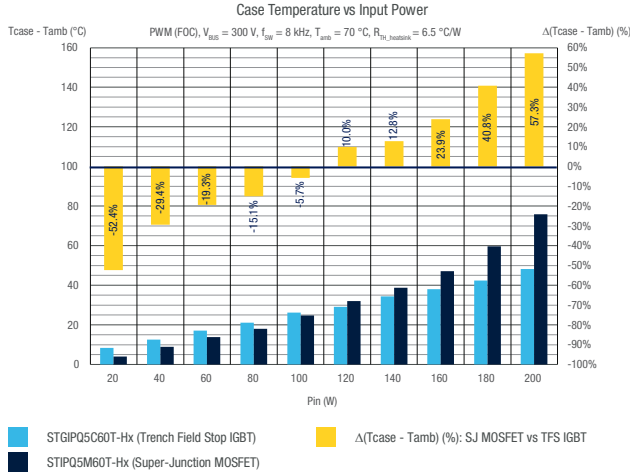
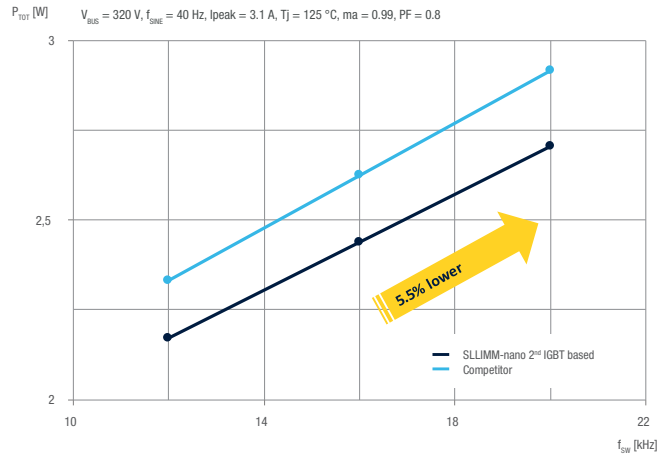


Fig2: Total power losses in a typical low-power washing machine



| Part number | Switch type | BV | ICN | $R_{DS(ON)}$ max @ $I_{CN/2}$ V_{cesat} typ @ I_{CN} | t_{dead} min |
|---------------------|----------------|-------|-----|---|----------------|
| STIPQ3M60T-HZ/L | SJ-MOSFET | 600 V | 3 A | 1.6 Ω | 1 μs |
| STIPQ5M60T-HZ/L | | | 5 A | 1 Ω | 1 μs |
| STGIPQ3H60T-HZ/L(S) | IGBT Planar | | 3 A | 2.15 V | 1.5 μs |
| STGIPQ3HD60-HZ/L | | | 3 A | 2.15 V | 1 μs |
| STGIPQ5C60T-HZ/L(S) | STGIPQ8C60T-HZ | | 5 A | 1.65 V | 1.5 μs |
| STGIPQ8C60T-HZ | | | 8 A | 2 V | 1 μs |

NOMENCLATURE

